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Application of Target Image Recognition Based on Network Sensitive Information Filtering Technology

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In order to improve the detection ability of target images under network sensitive information interference, a road surface target image recognition method based on deep fusion filtering is proposed. This method is comprised of the following steps: analyzing the action characteristic quantity of a road surface target image under the interference of network sensitive information, collecting the road surface target image under the interference of the network sensitive information by adopting a block combined monitoring technology, detecting the edge contour of the collected road surface target image under the interference of the network sensitive information, performing deep integration analysis and feature extraction of the road surface target image under the interference of the network sensitive information by combining the image segmentation technology. The gray histogram distribution structure model of road surface target image under network sensitive information interference is constructed, the effective extraction of the road surface target image and corner information under network sensitive information interference is carried out by adopting a region block matching method, the road surface target image under network sensitive information interference is simulated by adopting a multi-dimensional pixel reconstruction method, the characteristic point calibration and detection of the road surface target image under network sensitive information interference are carried out by adopting a large interval nearest neighbor specific point calibration method, and the optimal identification of the road surface target image under network sensitive information interference is realized. The simulation results show that this method has higher accuracy and better feature recognition ability for road surface target image recognition under network sensitive information interference and improves the road surface target image recognition ability under network sensitive information interference.

Keywords: Network Sensitive Information; Filtering; Target Image; Recognition.

1. INTRODUCTION

In the field of iconology and kinematics, it is necessary to carry out optimal identification of road surface target images under the interference of network sensitive information, combine the image identification and block combination monitoring and tracking technology to carry out image analysis of road surface target images under the interference of network sensitive information, establish a block combination monitoring and image analysis model of road surface target images under the interference of network sensitive information, and adopt a three-dimensional imaging method to carry out feature extraction and identification of road surface target images under the interference of network sensitive information (Zhang et al., 2019). To improve the ability of road surface target image feature recognition under the interference of network sensitive information, the related road surface target image recognition method under the interference of network sensitive information is of great significance in promoting

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the optimization of target image monitoring. Through the feature recognition of the road surface target image under the interference of network sensitive information, the road surface target detection is guided, and the research of the road surface target image recognition method under the interference of related network sensitive information has attracted great attention (Zhang et al., 2012).

With the rapid development of information technology in the network era, a variety of information resources are growing at an exponential level, and the modes of cultural communication and social and economic development are constantly changing. While it is increasingly convenient for people to obtain information, harmful information also gets a new carrier and means of transmission. Sensitive information is not conducive to social stability and economic development, but also easily affects the world outlook, values and outlook of life of minors who are not mature. Sensitive information has the characteristics of sensitive political tendency (or anti ruling party tendency), violent tendency, anti social tendency, which may cause social harm or affect social security, and it is a kind of relatively obscure information. There are various forms of network information, and sensitive information can exist and spread in various forms such as text, images and audio. Therefore, it is of great significance to identify and filter this sensitive information effectively.

The road surface target image recognition under the interference of network sensitive information is based on the image analysis of the target image monitoring science, adopts the road surface target motion block combination monitoring technology (Mao et al., 2016), carries out image fractal processing, and adopts the laser image recognition method of the road surface target image under the interference of network sensitive information to be realized. Using the traditional method, the research on image recognition methods of a road surface target image under network sensitive information interference mainly includes Harris corner detection method, moment analysis method and the fuzzy information enhancement method (Lin et al., 2016). A dynamic fractal recognition model of road surface target image information under network sensitive information interference is established. Combined with the scale decomposition method and multi-mode feature reconstruction method, block combined monitoring and feature recognition of road surface target motion are realized. Previous researchers proposed a real-time road surface target image extraction method under network sensitive information interference based on monocular video (Zhou et al., 2014; Ahmed, 2020; Tita and Degi, 2020; Nguyen, 2019). The monocular video acquisition method is used to sample and identify the road surface target image block by block, combined with a monitoring image under network sensitive information interference. However, this method has large computational cost and poor real-time performance for road surface target image identification under network sensitive information interference. Qi et al. proposed a road surface target image recognition method under network sensitive information interference based on video tracking, which realizes the optimal feature extraction of the road surface target motion video according to the track distribution rule and improves the recognition accuracy (Qi et al., 2014).

However, this method has a large ambiguity in road surface target image recognition under network sensitive information interference. In order to solve the above problems, this paper proposes a road surface target image recognition method under the interference of network sensitive information based on deep fusion filtering (Mohan and Govardhan, 2013). Firstly, laser sampling of the road surface target image information under the interference of network sensitive information is carried out, then a gray histogram distribution structure model of road surface target image under the interference of network sensitive information is constructed, and road surface target image recognition under the interference of network sensitive information is realized by combining a large interval nearest neighbor characteristic point calibration method, finally, simulation test analysis is carried out, and an effective conclusion is obtained.

2. BASIC DEFINITIONS

2.1 Target Image Acquisition

The first step in image acquisition is to extract the target features and analyze the sensitivity of the extracted features to the image information. At present, the most common method is based on the overall image contour extraction, but the extracted image features are easily mistaken for images with similar features, so the recognition is not accurate enough. Therefore, this paper uses a new method of feature extraction based on the combination of the overall features and local features of the image to distinguish the attributes of the image through more comprehensive specific features. The first one is global feature, including image size, image entropy and image focus feature; The second type is local feature, which mainly calculates the local eigenvalue according to the proportion of the whole feature and the local feature, the distance between the maximum feature area and the local feature area; The third type is user-defined feature extraction. By setting specific image features of sensitive information, when extracting features for the detected image, the set image features will be identified first to improve the efficiency of feature extraction. The three feature groups are combined together, and then the image acquisition is completed through the classification and analysis of the trainer.

In order to realize road surface target image recognition under the interference of network sensitive information, firstly, a block combined monitoring technology is adopted to collect road surface target images under the interference of network sensitive information, and edge contour detection is then carried out on the collected road surface target images under the interference of network sensitive information (Kimmett et al., 2015). Assuming that the gray pixel set of the block combined monitoring images of the road surface target images under the interference of network sensitive information is (i, j), taking this as a pixel center, sharpening template block combined processing is carried out by adopting a contour compensation method. At any level of the three-dimensional surface imaging model, the matching set of the road surface target image block combined monitoring image

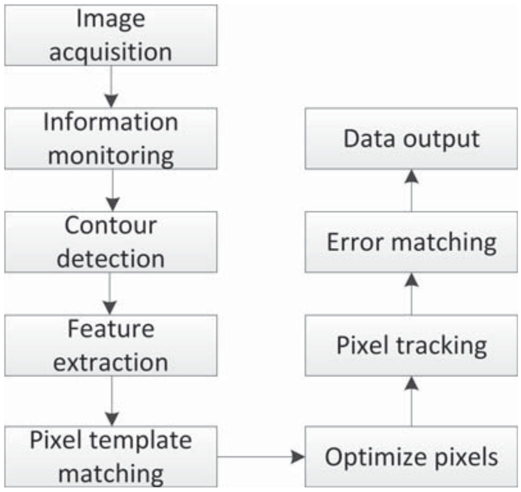


Figure 1 Schematic diagram of key points in object image acquisition.

pixel imaging template under the interference of network sensitive information is constructed as follows:

$$W_u u(a, b_m) = \frac{1}{\sqrt{a}} \int_{-aT/2+b_m}^{T/2} \left| \frac{1}{\sqrt{T}} \right|^2 dt = \frac{1}{\sqrt{a}T} \left(\frac{T}{2} + \frac{aT}{2} - b_m \right) \tag{1}$$

The level set function reconstruction method is adopted to optimize and reconstruct the road surface target image block combined monitoring image under the interference of network sensitive information. The single frame scanning technology is adopted to establish the error matching function of the road surface target image block combined monitoring image under the interference of network sensitive information (Zhao and Huang, 2018). Combined with the pixel reconstruction method, the action characteristic distribution pixel set of block combined monitoring and tracking of the road surface target image under the interference of network sensitive information is obtained as follows:

$$s(k) = \phi \cdot s(k-1) + w(k) \tag{2}$$

Wherein

$$\phi = \begin{pmatrix} 1 & 0 & 0 & 0 & 0 \\ 0 & 1 & 1 & 0 & 0 \\ 0 & 0 & 1 & 0 & 0 \\ 0 & 0 & 0 & 1 & 1 \\ 0 & 0 & 0 & 0 & 1 \end{pmatrix}, w(k) = \begin{pmatrix} N(0, \sigma_{\theta(k)}) \\ 0 \\ N(0, \sigma_{x(k)}) \\ 0 \\ N(0, \sigma_{y(k)}) \end{pmatrix} \tag{3}$$

The R, G and B components of the road surface target image block combined with the monitoring image W under the interference of network sensitive information are extracted, and the three-dimensional template matching values A_R, A_G, A_B and W_R, W_G, W_B of the road surface target image block combined monitoring image under the interference of corresponding network sensitive information are obtained in the evolution process of the contour curve. According to the above analysis, a road surface target image block combined monitoring image acquisition model under the interference of network sensitive information is constructed, and the feature extraction of the road surface target image under the interference of network sensitive information is carried out considering the regional information of the image (Li et al., 2018). The schematic diagram of key points of target image acquisition is shown in Figure 1.

2.2 Image Edge Contour Detection

The method comprises the following steps of: carrying out edge contour detection on a road surface target image under the interference of collected network sensitive information, carrying out deep integration analysis and feature extraction on the road surface target image under the interference of the network sensitive information by combining an image segmentation technology (Fan et al., 2018), calculating a visual feature distribution vectorization set of a road surface target image block combined monitoring image under the interference of the network sensitive information, and dividing threshold values of the road surface target image block combined monitoring image under the interference of the network sensitive information. These steps are as follows:

$$w(i, j) = \frac{1}{Z(i)} \exp\left(-\frac{d(i, j)}{h^2} \right) \tag{4}$$

Wherein, the method is comprised of the following steps: defining a Gibbs prior energy function of a block combined monitoring image of a road surface target image under the interference of network sensitive information for a template matching value of a sub-region feature matching region; performing edge and region information combination processing through an edge ambiguity identification method; obtaining a gradient information dynamic fusion result of the image in a feature marking region; obtaining a template feature distribution of a block combined monitoring image of the road surface target image under the interference of the network sensitive information as follows:

$$w\left(d_{ij}\right) = f\left(\left|x_i - x_j\right|\right) = \frac{1}{\sqrt{2\pi}} \exp\left\{ \frac{\left(x_i - x_j\right)^2}{2} \right\} \tag{5}$$

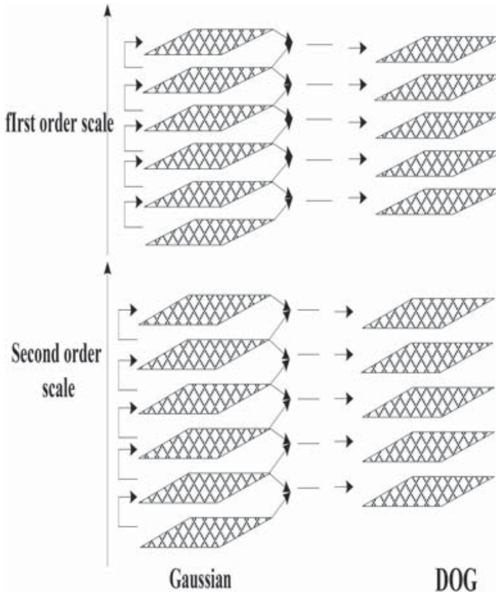


Figure 2 Image edge contour detection model.

The edge gradient information of the image is utilized to carry out block combined monitoring and image visual tracking of the road surface target image under the interference of network sensitive information, the block area size of the obtained image is $M \times N$, pixel feature separation is then carried out according to the visual RGB value of the block combined monitoring image of the road surface target image under the interference of network sensitive information, and the output is:

$$\beta_i = \exp\left\{-\frac{\left|x_i - x_j\right|^2}{2\sigma^2}\right\} \frac{1}{\operatorname{dist}\left(x_i, x_j\right)} \tag{6}$$

The method is comprised of the following steps: constructing an active contour model of a road surface target image under the interference of network sensitive information, carrying out correlation feature matching on the segmented combined monitoring image of the road surface target image under the interference of the network sensitive information, carrying out information fusion and feature extraction at the edge of the road surface target image target under the interference of the network sensitive information, and according to the analysis, constructing an edge contour detection model of the road surface target image under the interference of the network sensitive information, and carrying out motion gesture recognition according to the edge contour detection result (Gu et al., 2012). The image edge contour detection model is shown in Figure 2.

2.3 Image Acquisition

2.3.1 Methods of Image Acquisition

In different light, the pixel size of the image is different. The brighter the light and the higher the pixel, the better the effect of image acquisition. We need to set a reasonable range of pixel values to ensure that the collected image is effective. In this paper, an image acquisition method is proposed. When the road target image needs to be collected, the infrared ray irradiates the target image to make the image outline clearer and improve the size of a single pixel. The global features including the whole image information and image focus are obtained by recognizing the contour. The feature values are extracted and the range of effective pixel values is calculated. The pixels in the same region are classified by using edge based image segmentation technology.

2.3.2 Pixel Parameter Calculation and Image Classification

First of all, the process of defining the range of pixels with threshold is too rigid to produce good results in dealing with the complex background and environment of the image. Secondly, the relationship between pixel values is ignored based on threshold. Considering that there is only one pixel value, the skin pixels in the image can not be explored from the perspective of semantics and environment, and the extraction results are bound to be interfered by skin like pixels. Then, the researchers start from the relationship between pixels and the pixel distribution of images that conform to certain probability models, so they propose a nonparametric skin extraction algorithm. The algorithm is mainly based on Gaussian model or Gaussian mixture model to judge the probability. According to whether the parameters of Gaussian model are fixed, it can be divided into dynamic Gaussian method and static Gaussian method. The static Gaussian model mainly uses the pre selected skin pixel library to calculate the Gaussian model, and then extracts the skin as the skin model after calculating the parameters.

It is too hard to define the range of pixel value by threshold, which may ignore the complex conditions of background and environment of the image to be processed. Considering that the range of pixel value will be affected by complex environment, the extracted feature value will be disturbed. Therefore, from the relationship between pixels and custom features, the matching model of similar features is calculated, and the probability judgment is performed by using Gaussian model or mixed Gaussian model. According to whether the parameters of Gaussian model are fixed, it can be divided into dynamic Gaussian method and static Gaussian method. Static Gaussian model mainly uses custom image feature contour to map Gaussian model, and then takes the parameters as the extraction range of pixel matching model.

The pre trained image classifier is used to classify the pixels in the image and extract the image pixels. Image segmentation can divide the collected digital image into different regions, combine the same pixel set of the same region into the same position, mark the pixel features according to the classification granularity, introduce the environment information through the linear decision function, effectively filter the complex environment information in the image, and improve the brightness of the collected image by infrared, The data are automatically processed by the computer and output to the processing center for analysis.

3. OPTIMIZATION OF TARGET IMAGE RECOGNITION

3.1 Feature Detection of Road Surface Target Images Under Network Sensitive Information Interference

Based on the above-mentioned use of block combined monitoring technology for road surface target image acquisition under network sensitive information interference and edge contour detection of road surface target image under network sensitive information interference, road surface target image identification under network sensitive information interference is carried out (Guo et al., 2018). This paper proposes a road surface target image identification method under network sensitive information interference based on deep fusion filtering. The gray histogram distribution structure model of road surface target image under the interference of network sensitive information is constructed, and the effective extraction of the road surface target image and corner information under the interference of network sensitive information is carried out by adopting a region block matching method. The template matching function of road surface target image under the interference of network sensitive information is as follows:

$$f(g_i) = c_1 \tilde{\lambda}_i \sum_{j=0}^{N_{np}} \frac{\rho_j \vec{\upsilon}_{ij}}{\left|\vec{\upsilon}_{ij}\right|^{\sigma_1} + \varepsilon} \Bigg/ \sum_{j=0}^{N_{np}} \frac{\rho_j}{\left|\vec{\upsilon}_{ij}\right|^{\sigma_1} + \varepsilon} \tag{7}$$

Thus, the background difference component of the road surface target image under the interference of network sensitive information is obtained, a reconstruction model of a three-dimensional characteristic distribution region is established by adopting a difference information fusion method, dynamic fusion of road surface target motion actions is carried out by combining a Gaussian process and a deformation model (Ye et al., 2014), a gray pixel value fusion model of laser information of the road surface target image under the interference of network sensitive information is established, and the fusion result is satisfied:

$$\partial = \arccos\left\{\max\left[\frac{\overrightarrow{W_i S_k} \times \overrightarrow{W_i W_j}}{\left\|\overrightarrow{W_i S_k}\right\| \times \left\|\overrightarrow{W_i W_j}\right\|}\right]\right\} \tag{8}$$

Wherein, $k = 1, \ldots, M, i, j \in \{1, \ldots, N\}, i < j$. Thus, the background difference component of the road surface target image under the interference of network sensitive information is obtained, a reconstruction model of a three-dimensional characteristic distribution region is established by adopting a difference information fusion method, dynamic fusion of road surface target motion actions is carried out by combining a Gaussian process and a deformation model (Huang and Liu, 2016), a gray pixel value fusion model of laser information of the road surface target image under the interference of network sensitive information is established, and the fusion result is satisfied:

$$\min_c\left(\min_{y\in\Omega(x)}\left(\frac{I^c(y)}{A^c}\right)\right) = \tilde{t}(x)\min_c\left(\min_{y\in\Omega(x)}\left(\frac{J^c(y)}{A^c}\right)\right) + (1-\tilde{t}(x)) \tag{9}$$

Wherein $\tilde{t}(x)$ is the spatial region pixel of the road surface target image block combined monitoring image under the interference of network sensitive information, A^c is the gray information component of the block combined monitoring image, $I^c(y)$ is the transmission intensity of the road surface target image block combined monitoring under the interference of network sensitive information, and the adaptive fusion output of the obtained image is as follows by adopting a region block matching method:

$$bnr_\beta(X) = R_\beta X - R_\beta X_1 \tag{10}$$

An image adaptive fusion model of unlabeled road target motion video is constructed, a multi-dimensional pixel reconstruction method is adopted to simulate the road target image under the interference of network sensitive information (Yu and Sun, 2019; Chen et al., 2017), and a dynamic block matching technology is combined to carry out texture segmentation of the road target motion block combined monitoring image, and the super-resolution fusion model of the obtained image is as follows:

$$J(x, y, \sigma) = \begin{pmatrix} \frac{\partial P}{\partial x} \\ \frac{\partial P}{\partial y} \end{pmatrix} = \begin{pmatrix} 1 & 0 & L_x(x, y, \sigma) \\ 0 & 1 & L_y(x, y, \sigma) \end{pmatrix} \tag{11}$$

Different threshold values t are applied to segment the road surface target motion block combined monitoring image $L_x(x, y, \sigma)$ in order to realize the fractal estimation and information fusion of the image.

3.2 Feature Extraction and Recognition of Road Surface Target Images Under Network Sensitive Information Interference

The application of target image recognition under the network sensitive information filtering technology has received a large amount of research investment, however there are still many problems that are difficult to define and that require further effort, such as accuracy, timeliness, operability, etc. (Xu et al., 2017; Sun and Zhao, 2019; Shang and Zheng, 2019). In reality, it is necessary to reasonably balance the proportion of these three factors to achieve a high detection rate and a low error detection rate.

1) Accuracy

   Through the recognition of target image, a large part of geometric features can not be recognized. Only by image detection and material collection, it can not meet the requirements of sensitive information recognition. When identifying the custom sensitive image features, similar sensitive features will be ignored, and the accuracy is not high, and the efficiency of recognition of sensitive features is low. How to create a comprehensive database collection is worth further research.

2) Timeliness

   Existing network information filtering system processing speed is slow and is unable to meet the network condition of large picture information real-time processing. Therefore the challenges of network information filtering are that it should not only meet the sensitive image recognition accuracy of filtering, filtering efficiency and to achieve recognition it should also do so in a timely manner (Wei et al., 2019; Wu et al., 2019).

3) Operational issues

   Many researchers combine a series of methods to form a sensitive image recognition method with layer by layer filtering, which is very rigorous in theory and highly persuasive, but often involves too much technology and requires high hardware requirements, resulting in low feasibility.

In order to balance these three factors, this paper proposes a new solution. Setting the three-dimensional reconstruction image of the original road surface target motion block combined monitoring image as f, the contour of the object in the road surface target motion block combined monitoring image as G, performing block matching in an affine invariant region, performing body motion attitude transformation analysis through Kalman filtering method, and obtaining an attitude transformation matrix as follows:

$$K_{ab} = \begin{bmatrix} sx & 0 & 0 \\ 0 & sy & 0 \\ 0 & 0 & 1 \end{bmatrix} \tag{12}$$

Using the feature matching method of deformation model, the posture analysis and deformation feature analysis of road surface target motion are carried out. Based on the combination of morphological segmentation method, the road surface target motion segmented combined monitoring image is adaptively segmented, and the edge pixel values of the road surface target motion segmented combined monitoring image are obtained as follows:

$$Eext(V(i)) = \gamma(i)Eimage(V(i)) + \delta(i)Econ(V(i)) \tag{13}$$

Wherein the information component of the road surface target motion block combined monitoring is represented, the fusion filtering of the road surface target motion block combined monitoring image is carried out by combining a wavelet transform method, a fractal dimension statistical analysis model of the road surface target motion block combined monitoring image is established, the characteristic point calibration of the road surface target image under the interference of network sensitive information is carried out by adopting a large interval nearest neighbor specific point calibration method, and the super pixel region reconstruction result of the road surface target motion block combined monitoring image is obtained as follows:

$$P(x_{w_3}, y_{w_3}|\Theta) = \prod_{x_i \in w_3} \prod_{k=1}^{K} \alpha_k g(x_{ij}, y_{ij}|\mu_k, \sigma_k^2) \tag{14}$$

In the formula, w_3 represents the distribution area of the road surface target motion block combined monitoring image nearest to a specific point at large intervals, $x_{ij} \in w_3$ represents the gray pixel feature distribution set of the block combined monitoring image, Θ represents the unknown parameter set, the road surface target motion block combined monitoring image spatial distribution feature set is $NF_c = \{n{:}c-k \le n \le c+k\}$, a feature matching method is adopted to convert into a one-dimensional sequence with $1*WN$ size, and a two-dimensional spatial feature distribution fusion method is combined. The method is comprised of the following steps: calibrating a large interval nearest neighbor specific point of an image, realizing salient region feature extraction of a road surface target moving block combined monitoring image, and optimizing the identification result of the road surface target image under the interference of output network sensitive information. These steps are outlined as follows:

$$\begin{aligned} R(x, y) &= \frac{\det(M)}{\det(H)} \\ &= \frac{L_{xx}(x, y, \sigma) L_{yy}(x, y, \sigma) - L_{xy}(x, y, \sigma) L_{xy}(x, y, \sigma)}{1 + L_x^2(x, y, \sigma) + L_y^2(x, y, \sigma)} \\ &= \sigma^2 \frac{L_{xx}(x, y, \sigma) L_{yy}(x, y, \sigma) - L_{xy}(x, y, \sigma) L_{xy}(x, y, \sigma)}{1 + L_x^2(x, y, \sigma) + L_y^2(x, y, \sigma)} \end{aligned} \tag{15}$$

To sum up, the multi-dimensional pixel reconstruction method is used to simulate the road surface target image under the interference of network sensitive information, and the large interval nearest neighbor specific point calibration method is used to calibrate and detect the characteristic points of the road surface target image under the interference of network sensitive information, so as to realize the optimal identification of the road surface target image under the interference of network sensitive information.

4. SIMULATION TEST ANALYSIS

In order to verify the application performance of the method in realizing road surface target image recognition under the interference of network sensitive information, a simulation experiment is carried out. In the experiment, the fractal

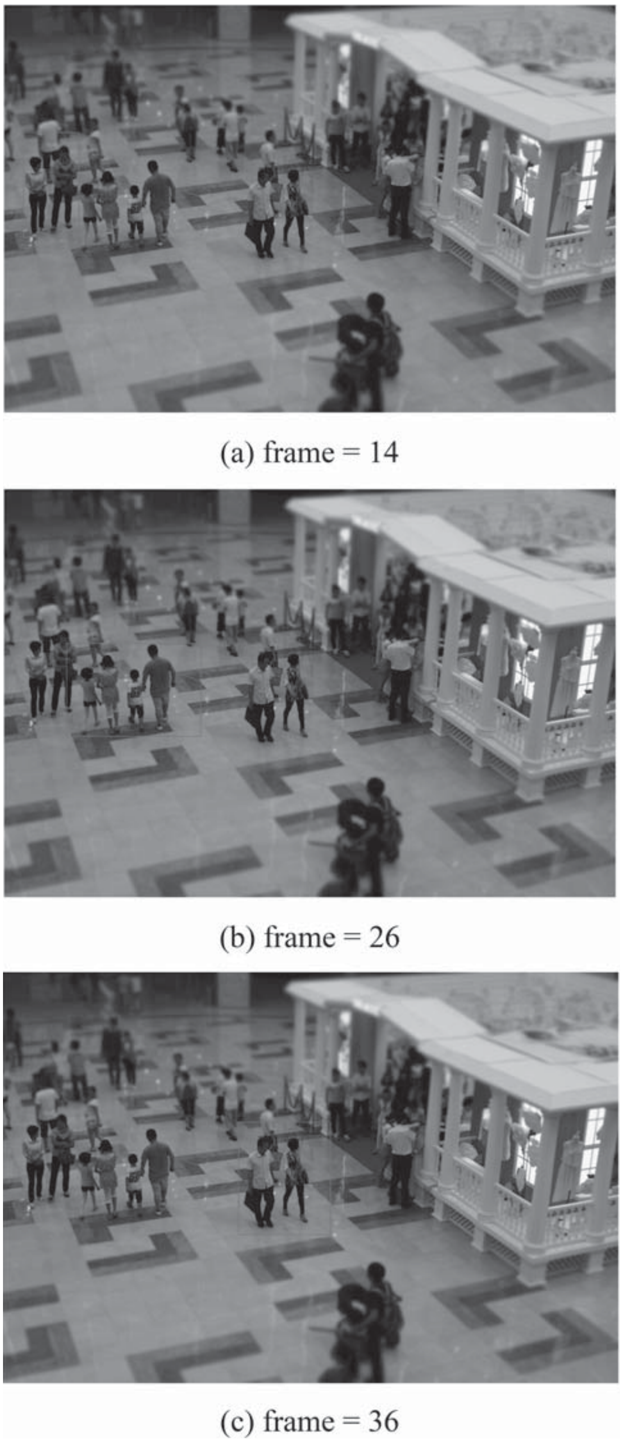


Figure 3 Road surface target image data sampling results under network sensitive information interference.

dimension of the road surface target moving block combined monitoring image is estimated to be 5, the hidden variable data $X = [2, 4, 6, 9]$, the sample training scale is 20, and the software for road surface target image reconstruction under the interference of network sensitive information is 3DStudio MAX. The edge information adjustment parameter of the road surface target moving block combined monitoring image is 1.45, and the feature segmentation coefficient is 0.65. The road surface target image data sampling results under the interference of network sensitive information for different sampling frames are shown in Figure 3.

Taking the sampling result of Figure 3 as input, and combining it with image segmentation technology, the deep integration analysis and feature extraction of the road surface target image under the interference of network sensitive information are carried out, and the feature points of road surface target image under the interference of network sensitive information are extracted. The result is shown in Figure 4.

According to the result of feature point extraction, the motion pattern is 43 frames. According to the result of large interval neighbor calibration, road surface target image

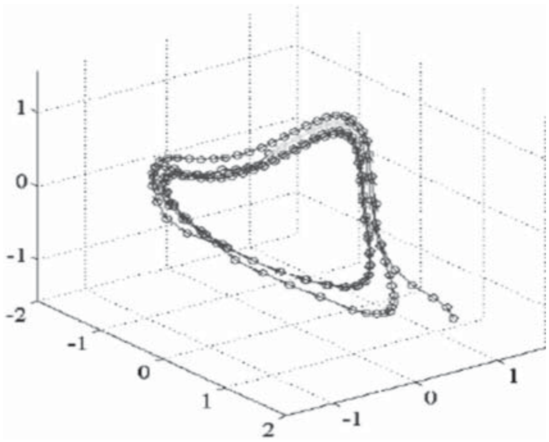
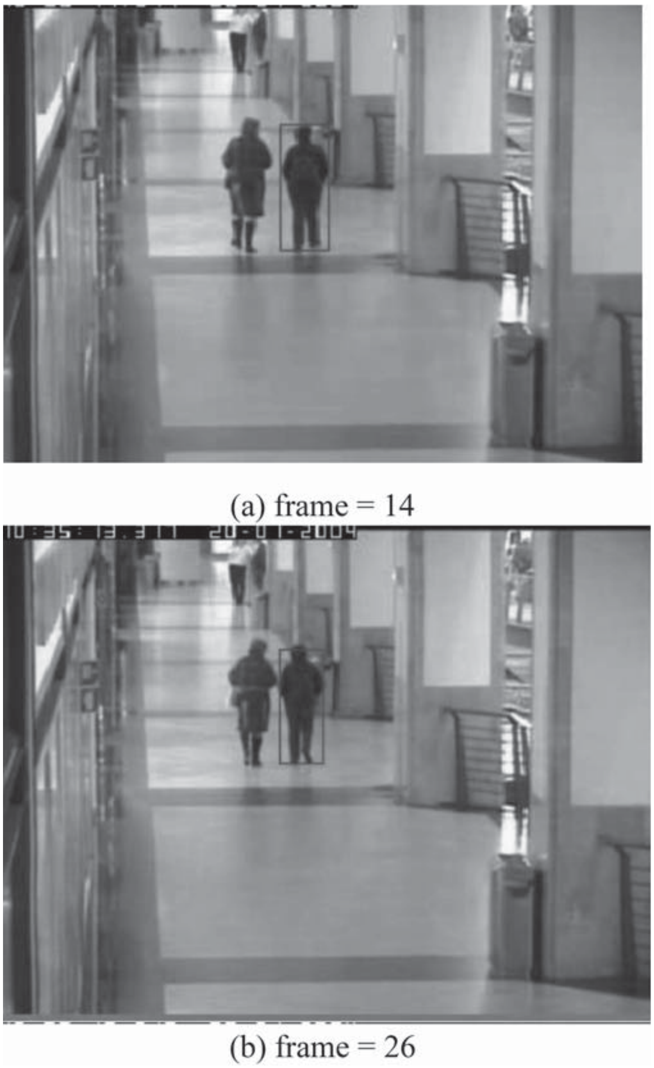


Figure 4 Extraction results of road surface target image feature points under network sensitive information interference.



(a) frame = 14

(b) frame = 26

Figure 5 Road surface target image recognition result under network sensitive information interference.

recognition under the interference of network sensitive information is respectively carried out from different sides, and the recognition result is shown in Figure 5.

Analysis of Figure 5 shows that the proposed method can effectively realize road surface target image recognition under the interference of network sensitive information and has good feature recognition capability. The recognition errors were tested, and the comparison results are shown in Table 1. Analysis of Table 1 shows that the error of road surface target motion feature recognition by this method is relatively low.

To further verify the accuracy and feasibility of the experiment, a skin model is proposed, which is firstly extracted

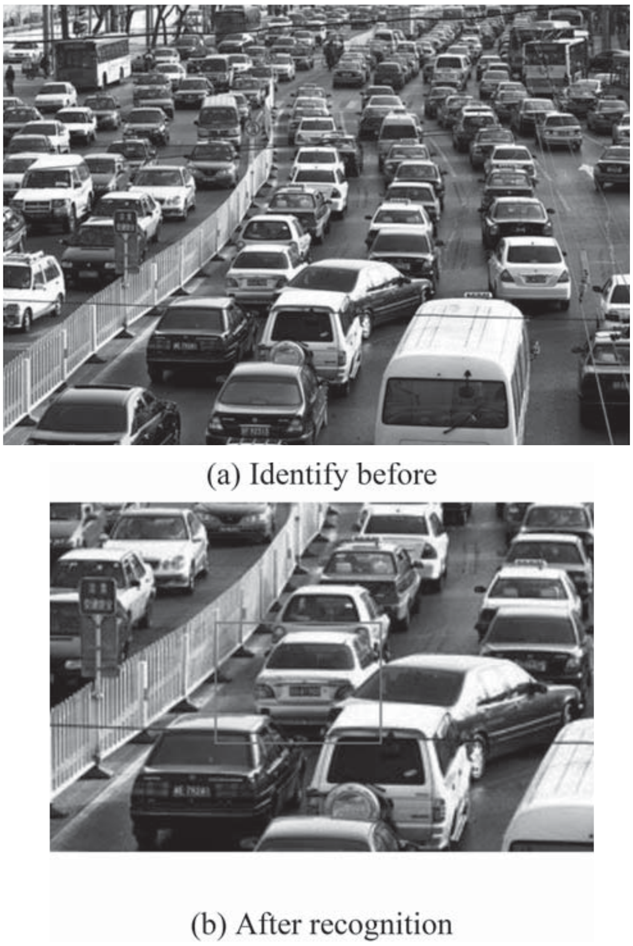


Figure 6 Face pixel ellipse model target image recognition.

Table 1 Error comparison.

Number of iterations	This method	Reference [3]	Reference [4]
100	0.045	0.098	0.199
200	0.015	0.087	0.165
300	0.008	0.065	0.142
400	0.001	0.053	0.087

from the face and then defined dynamically according to the features of skin pixels in the face. In the algorithm, a multi-model adaptive skin extraction algorithm is proposed. In this algorithm, the position of the face in the image is firstly extracted, and the elliptic model of the face is defined by the position of the person's eyes, as shown in Figure 6.

According to the face ellipse model, the facial range is determined, and then the facial skin pixel characteristics are dynamically defined to define the threshold of skin pixel. This algorithm solves the problem of poor adaptability in static threshold algorithm to some extent. The comparison results of sensitivity detection in the image data set are shown in Table 2.

Sensitivity analysis experiment for video: the sensitivity analysis of video used the data set shown above, including 167 videos with a total of 53,857 frames. For these videos, a total of 3785 key frames were extracted. After analyzing these frames and judging the video, the data shown in Table 2 was obtained. Through quantitative analysis of the data, it can be concluded that the algorithm proposed in this paper enhances the accuracy of video sensitivity analysis to some extent.

5. CONCLUSION

In this paper, a block combined monitoring and image analysis model of road surface target image under network sensitive information interference is established, and three-dimensional imaging method is adopted to extract and identify road surface target image under network sensitive information interference, so as to improve the feature identification capability of road surface target image under network sensitive information interference. A road surface target image identification method under network sensitive information interference based on deep fusion filtering is proposed. The method is comprised of the following steps: constructing an active contour model of a road surface target image under the

Table 2 The comparison results of sensitivity detection in the image data set.

Recall (%)	Accuracy (%)	F-measure (%)
89.2	90.1	64.7
90.4	92.3	67.8
91.1	93.3	70.3

interference of network sensitive information, performing correlation feature matching on the segmented combined monitoring image of the road surface target image under the interference of the extracted network sensitive information, constructing a segmented fusion model of the segmented combined monitoring image of the road surface target image under the interference of the network sensitive information, calibrating and detecting characteristic points of the road surface target image under the interference of the network sensitive information by adopting a large interval nearest neighbor specific point calibration method, and realizing optimal identification of the road surface target image under the interference of the network sensitive information. The analysis shows that the method in this paper has a lower rate of errors and better performance in road surface target image recognition under the interference of network sensitive information.

In view of these problems, we put forward some new ideas and possible optimization directions, but there are still various problems in the field of computer vision, and the algorithm proposed in this paper is still not perfect, so in the future research work, we will continue to optimise and experiment with different techniques. Here are some possible directions for our next research:

a. Considering that we can abandon the human body model in object extraction and change it to other weak constraints for semantic restrictions, for example, we can use ellipse model, or use different models for different parts of the human body, so that we can locate more accurately, reduce the complexity and improve the calculation efficiency of the algorithm.

b. From the perspective of implementation, it can be seen from the flow chart that the calculation time of the recognition feature probability model and the road change model overlaps, which parallelizes the calculation of the two models and reduces the time of the whole algorithm.

c. In the image sensitivity judgment algorithm, this paper only makes a simple series of global and local features. In future work, we can consider whether these eigenvalues have some internal relations and can verify each other, so that we can optimize the algorithm from the perspective of an eigenvalue structure.

REFERENCES

1. Ahmed M.A. (2020). Evaluation of Influence of Corona on Lightning Surge. *Acta Electronica Malaysia*, 4(1): 7–10.
2. Chen, X., Peng, X., Duan, R., et al. Deep kernel learning method for SAR image target recognition. *Review of Scientific Instruments*, 2017, 88(10): 104–108.
3. Fan, C.L., Song, Y.F., Lei, L., et al. Evidence reasoning for temporal uncertain information based on relative reliability evaluation. *Expert Systems with Applications*, 2018, 113: 264–276.
4. Gu, Q., Yuan, L., Ning, B., et al. A novel classification algorithm for imbalanced datasets based on hybrid resampling strategy. *Computer Engineering and Science*, 2012, 34(10): 128–134.
5. Guo, H.P., Zhou, J., Wu, C.A., et al. K-nearest neighbor classification method for class-imbalanced problem. *Journal of Computer Applications*, 2018, 38(4): 955–959.
6. Huang, S.C., Liu, Y. Classification algorithm for noisy and dynamic data stream. *Journal of Jiangsu University of Science and Technology (Natural Science Edition)*, 2016, 30(3): 281–285.
7. Kimmett, B., Srinivasan, V., Thomo, A. Fuzzy joins in MapReduce, an experimental study. *Proceedings of the VLDB Endowment*, 2015, 8(12): 1514–1517.
8. Li, A.N., Zhang, X., Zhang, B.Y., et al. Research on performance evaluation method of public cloud storage system. *Journal of Computer Applications*, 2018, 37(5): 1229–1235.
9. Lin, J.M., Ban, W.J., Wang, J.Y., et al. Query optimization for distributed database based on parallel genetic algorithm and max-min ant system. *Journal of Computer Applications*, 2016, 36(3): 675–680.
10. Mao, W.T., Tian, Y.Y., Wang, J.W., et al. Granular extreme learning machine for sequential imbalanced data. *Control and Decision*, 2016, 31(12): 2147–2154.
11. Mohan, B., Govardhan, A. Online aggregation using MapReduce in MongoDB. *International Journal of Advanced Research in Computer Science and Software Engineering*, 2013, 3(9): 1157–1165.
12. Nguyen H.P. (2019). A Short Communication on Reverse Logistics Role in the Supply Chain. *Information Management and Computer Science*, 2(1): 10–14.
13. Qi, C.Y., Li, Z.H., Zhang, X., et al. The research of cloud storage system performance evaluation. *Journal of Computer Research and Development*, 2014, 51(S1): 223–228.
14. Shang, Y.Y., Zheng, X.C. Research on the implementation method of intelligent screening of Japanese web corpus information. *Digital communication World*, 2019, 5(5): 257–258.
15. Sun, J.J., Zhao, F. Application of non-negative matrix factorization in space object recognition. *Laser & Optoelectronics Progress*, 2019, 56(10): 36–42.
16. Tita D., Degi A. (2020). Individual and Organizational Impacts: Information and System Quality Influence on Attitude Towards Use and User Satisfaction of Agency-Level Financial Application System. *Acta Informatica Malaysia*, 4(1): 10–18.
17. Wei, C.C. Research on filtering technology of lidar positioning information redundant data. *Laser Journal*, 2019, 40(3): 125–129.
18. Wu, Y.F., Zhu, L.J., Shi, J.P. Application of artificial neural network in information filtering. *Journal of Jishou University (Natural Sciences Edition)*, 2019, 40(3): 17–22.

19. Xu, W., Chen, Y.T., Piao, Y.J., et al. Target fast matching recognition of on-board system based on Jilin-1 satellite image. *Optics & Precision Engineering*, 2017, 25(1): 255–262.
20. Ye, A.Y., Li, Y.C., Ma, J.F., et al. Location privacy-preserving method of k-anonymous based-on service similarity. *Journal on Communications*, 2014, 35(11): 162–169.
21. Yu, T.C., Sun, X.S. Design of image recognition and target tracking system based on FPGA. *Microcontrollers & Embedded Systems*, 2019, 19(9): 30–34.
22. Zhang, H.L., Li, X.F., Yang, S.B., et al. Dual closed-loop fuzzy PID depth control for deep-sea self-holding intelligent buoy. *Information and Control*, 2019, 48(2): 202–208, 216.
23. Zhang, Y., Li, Z.R., Liu, X.D. Active learning SMOTE based imbalanced data classification. *Computer Applications and Software*, 2012, 29(3): 91–93.
24. Zhao, Q.Q., Huang, T.M. Multi-objective decision making based on entropy weighted-Vague sets. *Journal of Computer Applications*, 2018, 38(5): 1250–1253.
25. Zhou, X.P., Zhang, X.F., Zhao, X.N. Cloud storage performance evaluation research. *Computer Science*, 2014, 41(4): 190–194.